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155. Proposed by F. P. MATZ. Sc. D.. Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance. O.

A bought a horse, which he sold to B at a *loss* of $m=6\%$; B sold the horse to C at a *loss* of $n=5\%$; and C sold the horse to D at a *gain* of $p=12\frac{1}{2}\%$. How much did A *lose*, if C gained $\$G=\$26.79$?

ALGEBRA.

156. Proposed by B. F. FINKEL. A. M., M. Sc.. Professor of Mathematics and Physics in Drury College, Springfield, Mo.

$(z+x)a-(z-x)b=2yz$......(1); $(x+y)b-(x-y)c=2xz$......(2); $(y+z)c-(y-z)a=2xy$......(3). Find the values of x, y, and z, by the method of linear simultaneous equations.

NOTE. This problem was somewhat abbreviated in the last issue. The problem occurs in Fisher & Schwatt's *Elements of Algebra*, page 224, under Linear Simultaneous Equations.

157. Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Chemistry and Physics in The Temple College, Philadelphia. Pa.

Solve the equations,

$$\frac{x}{a+\lambda}+\frac{y}{b+\lambda}+\frac{z}{c+\lambda}+\frac{u}{d+\lambda}=1,\quad \frac{x}{a+\mu}+\frac{y}{b+\mu}+\frac{z}{c+\mu}+\frac{u}{d+\mu}=1,$$

$$\frac{x}{a+\nu}+\frac{y}{b+\nu}+\frac{z}{c+\nu}+\frac{u}{d+\nu}=1,\quad \frac{x}{a+\rho}+\frac{y}{b+\rho}+\frac{z}{c+\rho}+\frac{u}{d+\rho}=1.$$

158. Proposed by R. D. BOHANNON, Ph. D.. Professor of Mathematics, Ohio State University, Columbus, O.

If $\frac{x}{a+\alpha}+\frac{y}{b+\alpha}+\frac{z}{c+\alpha}=\frac{x}{a+\beta}+\frac{y}{b+\beta}+\frac{z}{c+\beta}=\frac{x}{a+\gamma}+\frac{y}{b+\gamma}+\frac{z}{c+\gamma}=1,$

$$\text{show, }\frac{x}{(a+\beta)^2}+\frac{y}{(b+\beta)^2}+\frac{z}{(c+\beta)^2}=\frac{(\gamma-\beta)(\alpha-\beta)}{(a+\beta)(b+\beta)(c+\beta)}.$$

GEOMETRY.

182. Proposed by MARCUS BAKER, U. S. Geological Survey, Washington, D. C.

Show how to cut from a given cube, edge s, the maximum tetrahedron.

183. Proposed by S. F. NORRIS, Professor of Mathematics and Astronomy, Baltimore City College, Baltimore, Md.

"Two quadrilaterals having three sides of the one equal to the three corresponding sides of the other, each to each, and the two corresponding angles adjacent to the unknown sides equal, each to each, are equal figures." [Olney's *Geometry*, page 129.]